NRO-139-11

# COMMONWEALTH of VIRGINIA


*DEPARTMENT OF ENVIRONMENTAL QUALITY*
NORTHERN REGIONAL OFFICE
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## COMMONWEALTH OF VIRGINIA
## Department of Environmental Quality
## Northern Regional Office

### STATEMENT OF LEGAL AND FACTUAL BASIS

Transcontinental Gas Pipe Line Corporation
Manassas, Prince William County, Virginia
Permit No. NRO-71958

Title V of the 1990 Clean Air Act Amendments required each state to develop a permit program to ensure that certain facilities have federal Air Pollution Operating Permits, called Title V Operating Permits. As required by 40 CFR Part 70 and 9 VAC 5 Chapter 80, Transcontinental Gas Pipe Line Corporation has applied for a Title V Operating Permit for its Manassas, Prince William County facility. The Department has reviewed the application and has prepared a draft Title V Operating Permit.

Engineer/Permit Contact: _____ Date: 6/1/11
Elizabeth Aiken
(703) 583-3890

Air Permit Manager: _____ Date: 6/1/11
Terry H. Darton

Regional Director: _____ Date: 6/1/11
Thomas A. Faha

## FACILITY INFORMATION

Permittee
Transcontinental Gas Pipe Line Corporation
P.O. Box 1396
Houston, Texas 77251-1396

Facility
Transcontinental Gas Pipe Line Corporation
Compressor Station 185
10201 Balls Ford Road
Manassas, Prince William County, Virginia 20109

County-Plant Identification Number: 51-153-00086

## SOURCE DESCRIPTION

SIC Code: 4922 – Natural Gas Transmission

Transco is an interstate natural gas transmission company. Transco's 1,900-mile pipeline system transports natural gas from areas in the Gulf Coast region to customers in the northeast. Transco's compressor stations are used to compress and move the gas along the system. Gas compression at this facility is made possible through the operation of ten Ingersoll-Rand natural gas-fired internal combustion engines and their associated compressors.

The facility is a Title V major source of $NO_x$, VOC, and CO. The source is located in an ozone nonattainment area as well as the ozone transport region (OTR). Station 185 is a major source of hazardous air pollutants (HAPS) also based on its potential to emit both formaldehyde and aggregated HAP emissions. The facility is currently permitted under a minor NSR permit dated April 10, 2001.

## COMPLIANCE STATUS

A full compliance evaluation of this facility, including a site visit, was conducted on April 19, 2010. In addition, all reports and other data required by permit conditions or regulations, which are submitted to DEQ, are evaluated for compliance. Based on these compliance evaluations, the facility has not been found to be in violation of any state or federal applicable requirements at this time.

**EMISSION UNIT AND CONTROL DEVICE IDENTIFICATION:**

| Emission Unit | Stack ID | Emission Unit Description | Size/Rated Capacity | Combustion Technology | Pollution Control Device | Pollutant Controlled | Applicable Permit Date |
|---|---|---|---|---|---|---|---|
| M/L 1 | 01 | Ingersoll-Rand 412-KVS DT Series Reciprocating Internal Combustion Engine | 2000 hp | High Pressure Fuel Injection (HPFi) for NOx & VOC Reduction | Catalytic Oxidation for CO reduction | Nitrogen Oxides (NOx) and Volatile Organic Compounds (VOC) controlled by HPFi, Carbon Monoxide (CO) Controlled by Catalytic Oxidation | April 10, 2001 NSR Permit |
| M/L 2 | 02 | Ingersoll-Rand 412-KVS DT Series Reciprocating Internal Combustion Engine | 2000 hp | HPFi | Catalytic Oxidation | NOx CO & VOC | April 10, 2001 NSR Permit |
| M/L 3 | 03 | Ingersoll-Rand 412-KVS DT Series Reciprocating Internal Combustion Engine | 2000 hp | HPFi | Catalytic Oxidation | NOx CO & VOC | April 10, 2001 NSR Permit |
| M/L 4 | 04 | Ingersoll-Rand 412-KVS DT Series Reciprocating Internal Combustion Engine | 2000 hp | HPFi | Catalytic Oxidation | NOx CO & VOC | April 10, 2001 NSR Permit |
| M/L 5 | 05 | Ingersoll-Rand 412-KVS DT Series Reciprocating Internal Combustion Engine | 2000 hp | HPFi | Catalytic Oxidation | NOx CO & VOC | April 10, 2001 NSR Permit |

| Emission Unit | Stack ID | Emission Unit Description | Size/Rated Capacity | Combustion Technology | Pollution Control Device | Pollutant Controlled | Applicable Permit Date |
|---|---|---|---|---|---|---|---|
| M/L 6 | 06 | Ingersoll-Rand 412-KVS DT Series Reciprocating Internal Combustion Engine | 2000 hp | HPFi | Catalytic Oxidation | NOx CO & VOC | April 10, 2001 NSR Permit |
| M/L 7 | 07 | Ingersoll-Rand 412-KVS DT Series Reciprocating Internal Combustion Engine | 2000 hp | HPFi | Catalytic Oxidation | NOx CO & VOC | April 10, 2001 NSR Permit |
| M/L 8 | 08 | Ingersoll-Rand 412-KVS DT Series Reciprocating Internal Combustion Engine | 2000 hp | HPFi | Catalytic Oxidation | NOx CO & VOC | April 10, 2001 NSR Permit |
| M/L 9 | 09 | Ingersoll-Rand 412-KVS DT Series Reciprocating Internal Combustion Engine | 2000 hp | HPFi | Catalytic Oxidation | NOx CO & VOC | April 10, 2001 NSR Permit |
| M/L 10 | 10 | Ingersoll-Rand 412-KVS DT Series Reciprocating Internal Combustion Engine | 2000 hp | HPFi | Catalytic Oxidation | NOx CO & VOC | April 10, 2001 NSR Permit |
| A/C 1 | 11 | Caterpillar G3306 | 203 hp | - | - | - | April 10, 2001 NSR Permit |
| IA1 | 12 | Caterpillar G-3508 emergency electric generator | 534 hp | - | - | - | April 10, 2001 NSR Permit |

| Emission Unit | Stack ID | Emission Unit Description | Size/Rated Capacity | Combustion Technology | Pollution Control Device | Pollutant Controlled | Applicable Permit Date |
|---|---|---|---|---|---|---|---|
| IA2 | 13 | Caterpillar G-3508 emergency electric generator | 534 hp | - | - | - | April 10, 2001 NSR Permit |

*The Size/Rated capacity is provided for informational purposes only, and is not an applicable requirement but may serve to determine the applicability of state or federal requirements.

**EMISSIONS INVENTORY**

A copy of the 2009 annual emission update is attached as Attachment A. Emissions are summarized in the following tables.

| | 2009 Criteria Pollutant Emission in Tons/Year | | | | |
|---|---|---|---|---|---|
| Criteria Pollutant | VOC | CO | $SO_2$ | $PM_{10}$ | $NO_x$ |
| Total | 12.39 | 13.87 | 1.98 | 7.11 | 350.34 |

2009 Facility Hazardous Air Pollutant Emissions

| Pollutant | 2009 Hazardous Air Pollutant Emission in Tons/Yr |
|---|---|
| Formaldehyde | 4.01 |

**EMISSION UNIT APPLICABLE REQUIREMENTS –**

**A. Limitations**

The following applicable limitations are requirements from Conditions 5, 7, 9, 10, 11, and 12 of Station 185's Minor New Source Review Permit issued April 10, 2001. A copy of the permit is attached as Attachment B.

Condition 1: Short term and annual emission limits for NOx, CO, and VOC from the compressor engines (Ref. No. M/L 1 thru M/L 10)

Condition 2: Visible emissions limit of 20% opacity from each gas fired engines

Condition 3: The air compressor (Ref. No. A/C 1) is restricted to $9.03 \times 10^6$ cubic feet of natural gas per year.

Condition 4: Short term and annual emission limits for NOx and CO from the air compressor (Ref. No. A/C 1). $NO_x$ and CO emission limits were calculated using the manufacturer supplied data, not as Condition 10 of the April 10, 2001 NSR permit indicates "based on three, one hour test runs".

Condition 5: The emergency electric generators shall not operate more than 500 hours per year each.

Condition 6: The approved fuel for the engines is natural gas.

In absence of existing regulation, Condition 7 has been added to create a federally enforceable permit condition designating the two electric generators (Ref. No. IA-1 and IA-2) as emergency stationary RICE as defined in 40 CFR 63.6675. As an existing stationary RICE with a site rating >500 hp located at a major stationary source of HAP emissions and used only for emergency purposes, testing, and maintenance, the two units will not have to meet the requirements of 40 CFR 63, Subpart ZZZZ. (40 CFR 63.6590(b)(3)(iii)) as long as they are operated in accordance with 40 CFR 63.6640(f)(2).

**Monitoring and Record Keeping**

The monitoring and recordkeeping requirements in Condition number 16 of the NSR permit have been modified to meet Part 70 requirements.

Condition 1: In absence of an existing regulation, 9 VAC 5-80-110 was used to establish a condition for compliance testing to demonstrate compliance with emission limits contained in Conditions III.A.1. Reference method and semi-annual combustion exhaust emissions testing for VOC on the ten mainline compressor engines have been performed since 2002. The highest results of that testing from December 2002 through present indicate VOC emissions are at approximately 64% below the permitted limit. The data provides reasonable assurance the engines operate well below their limits and therefore the semi-annual/annual VOC testing requirements have been removed.

Condition 2: In absence of an existing regulation, 9 VAC 5-80-110 was used to establish a condition for maintaining the internal combustion compressors and air compressor. The condition also ensures compliance with Condition III.A.1.

Condition 3: Establishes a condition for maintaining records of operator training, and scheduled and unscheduled maintenance on the internal combustion compressors and air compressor.

Condition 4: Requirement from Condition 16 of the NSR Permit which has been modified to meet Part 70 requirements. Condition 4.c has been added to document the emergency generators are operated in accordance with Condition III.A.7

**Testing**

Condition 1: The facility shall be constructed so as to allow for appropriate testing.

Condition 2 and 3: The Department and EPA have authority to require testing not included in this permit if necessary to determine compliance with an emission limit or standard.

Condition 4: In absence of an existing regulation, 9 VAC 5-80-110 E was used to establish a condition for applicable test methods to demonstrate compliance with emission limits contained in Conditions III.A.1, III.A.2, and III.A.4.

**Reporting**

Condition 1: In absence of an existing regulation, 9 VAC 5-80-110 F was used to establish a condition for compliance with reporting requirements for emission excursions for all equipment on this facility.

Condition 2: In absence of an existing regulation, 9 VAC 5-80-110 was used to establish a condition for the purpose of maintaining good operating practices for the reduction of air pollutant emissions.

**Streamlined Requirements**

The following conditions have been streamlined from the April 10, 2001 New Source Review permit:

Condition 3: States nitrogen oxide emissions from the air compressor shall be controlled by optimizing the ignition/combustion characteristics of the internal combustion engine. Since this optimization has been completed, there is no further need to carry over this condition.

Condition 4: States that Carbon monoxide (CO) and volatile organic compound (VOC) emissions from the Ingersoll-Rand compressor engines shall be controlled by installing a high-pressure fuel injection (HPFi™) system on the Ingersoll-Rand engines and test them to demonstrate that the reductions in CO and VOC are sufficient to achieve the emission limits. In the event HPFi™ does not reduce both CO and VOC emissions sufficiently a catalytic oxidation system shall be installed on the engines. Since this optimization has been completed, there is no further need to carry over this condition.

Condition 8: States that initial compliance testing is required after the Ingersoll Rand compressor engines are modified. Since this compliance testing has been completed, there is no further need to carry over this condition.

Condition 13: States that the permittee shall furnish written notification to the Air Compliance Manager, Northern Virginia Regional Office, of the actual date on which the modification of the compressor engines commenced, the actual start-up date of the modified engines , and the anticipated date of each compliance test. Since this notification has been completed, there is no further need to carry over this condition.

**GENERAL CONDITIONS**

The permit contains general conditions required by 40 CFR Part 70 and 9 VAC 5-80-110 that apply to all Federal-operating permitted sources. These include requirements for submitting semi-annual monitoring reports and an annual compliance certification report. The permit also

requires notification of deviations from permit requirements or any excess emissions.

**Comments on General Conditions**

**B. Permit Expiration**

This condition refers to the Board taking action on a permit application. The Board is the State Air Pollution Control Board. The authority to take action on permit application(s) has been delegated to the Regions as allowed by §2.2-604 and §10.1-1185 of the *Code of Virginia,* and the "Department of Environmental Quality Agency Policy Statement No. 2-2003".

This general conditions cites the entire Article(s) that follow:
B.2. Article 1 (9 VAC 5-80-50 et seq.), Part II of 9 VAC 5 Chapter 80. Federal Permits for Stationary Sources
B.3. Article 1 (9 VAC 5-80-50 et seq.), Part II of 9 VAC 5 Chapter 80. Federal Permits for Stationary Sources

This general condition cites the sections that follow:
B. 9 VAC 5-80-80. "Application"
B.2. 9 VAC 5-80-150. "Action on Permit Applications"
B.3. 9 VAC 5-80-80. "Application"
B.4. 9 VAC 5-80-80. "Application"
B.4. 9 VAC 5-80-140. "Permit shield"
B.5. 9 VAC 5-80-80. "Application"

**F. Failure/Malfunction Reporting**

Section 9 VAC 5-20-180 requires malfunction and excess emission reporting within four hours of discovery. Section 9 VAC 5-80-250 of the Title V regulations also requires malfunction reporting; however, reporting is required within two days. Section 9 VAC 5-20-180 is from the general regulations. All affected facilities are subject to section 9 VAC 5-20-180 including Title V facilities. Section 9 VAC 5-80-250 is from the Title V regulations. Title V facilities are subject to both sections. A facility may make a single report that meets the requirements of 9 VAC 5-20-180 and 9 VAC 5-80-250. The report must be made within four daytime business hours of discovery of the malfunction.

In order for emission units to be relieved from the requirement to make a written report in fourteen days the emission units must have continuous monitors and the continuous monitors must meet the requirements of 9 VAC 5-50-410 or 5-40-41.

This general condition cites the sections that follow:

9 VAC 5-40-41. Emissions Monitoring Procedures for Existing Sources
9 VAC 5-40-50. Notification, Records and Reporting
9 VAC 5-50-50. Notification, Records and Reporting]

This general condition contains a citation from the Code of Federal Regulations as follows:

40 CFR 60.13 (h). Monitoring Requirements

**J. Permit Modification**

This general condition cites the sections that follow:

9 VAC 5-80-50. Applicability, Federal Operating Permit For Stationary Sources
9 VAC 5-80-190. Changes to Permits.
9 VAC 5-80-260. Enforcement.
9 VAC 5-80-1100. Applicability, Permits For New and Modified Stationary Sources
9 VAC 5-80-1790. Applicability, Permits For Major Stationary Sources and Modifications Located in Prevention of Significant Deterioration Areas
9 VAC 5-80-2000. Applicability, Permits for Major Stationary Sources and Major Modifications Locating in Nonattainment Areas

**U. Malfunction as an Affirmative Defense**

The regulations contain two reporting requirements for malfunctions that coincide. The reporting requirements are listed in sections 9 VAC 5-80-250 and 9 VAC 5-20-180. The malfunction requirements are listed in General Condition U and General Condition F. For further explanation see the comments on general condition F.

This general condition cites the sections that follow:

9 VAC 5-20-180. Facility and Control Equipment Maintenance or Malfunction
9 VAC 5-80-110. Permit Content

## FUTURE APPLICABLE REQUIREMENTS

The facility is a major source of hazardous air pollutants (formaldehyde). The facility will be subject to the following requirements:

- Maximum achievable control technology standards (MACT) for Industrial, Commercial, and Institutional Boilers and Process Heaters, under 40 CFR 63 are scheduled for promulgation. The facility will be subject to those requirements once promulgated.

- Maximum achievable control technology standards (MACT) for Stationary Reciprocating Internal Combustion Engines, under 40 CFR 63 Subpart ZZZZ. The one Caterpillar, Model # G3306, 203 hp internal combustion engine (Ref. No. A/C 1) will become subject to the requirements of this subpart on October 19, 2013.

**INAPPLICABLE REQUIREMENTS**

The following requirements which have been specifically identified as being not applicable to this permitted facility:

| Citation | Title of Citation | Description of Applicability |
|---|---|---|
| 40 CFR Part 63 Subpart HH | National Emissions Standards for Hazardous Air Pollutants (NESHAP) for Oil and Natural Gas Production | Applies to facilities that process, upgrade, or store (1) hydrocarbon liquids and (2) natural gas from the well up to and including the natural gas processing plant. Station 185 is a transmission facility, therefore, is not subject to the requirements of the subpart. |
| 40 CFR Part 63, Subpart HHH | National Emissions Standards for Hazardous Air Pollutants (NESHAP) for Natural Gas Transmission and Storage | Applies to facilities that process, upgrade, transport or store natural gas prior to delivery to a local distribution company, or final end user. The owner or operator of a major source of HAP must reduce HAP emissions from glycol dehydration units. Station 185 does not contain any glycol dehydration units, and is not subject to the requirements of this subpart. |
| 40 CFR Part 68 | Chemical Accident Prevention Provisions | Applies to stationary sources that have more than a threshold quantity of a regulated substance in a process, as determined under 40 CFR 68.115. The definition of Stationary Source does not apply to transportation under the provision of the subpart. |
| 40 CFR 64 | Compliance Assurance Monitoring | Applies to facilities equipped with pollution control devises with potential pre-control device emissions greater that 100 TYP. The ten mainline compressors do not have an uncontrolled Carbon Monoxide PTE greater than 100 tpy therefore 40 CFR 64 is not applicable to Station 185. |

| Citation | Title of Citation | Description of Applicability |
|---|---|---|
| CAA, Section 112(r) – | Risk Management Plans | Station 185 does not qualify as a "Stationary Source" under the definitions section in 40 CFR 68.3. This section specifically excludes transportation related activities that are regulated under 49 CFR 192, 193, or 195. |
| 40 CFR 60, Subpart JJJJ | Standards of Performance for Stationary Spark Ignition Internal Combustion Engines | Applies to new/reconstructed/modified spark ignition (SI) internal combustion engines (ICE), regardless of hp rating. Station 185 does not plan to install new or reconstructed, or modify and existing SI ICE, therefore the standards of Subpart JJJJ are not applicable |
| 40 CFR 63, Subpart ZZZZ | National Emissions Standards for Hazardous Air Pollutants (NESHAP) for Stationary Reciprocating Internal Combustion Engines. | The mainline engines (Ref No M/L 1 – M/L 10) are 4 stroke lean burn exempted from requirements per Section 63.6590 (b)(3)(ii) and the emergency electrical generators (Ref No IA1 and IA2) are used for emergency purposes only and therefore exempt from the requirements per Section 63.6590 (b)(3)(iii). |

**INSIGNIFICANT EMISSION UNITS**

The insignificant emission units are presumed to be in compliance with all requirements of the Clean Air Act as may apply. Based on this presumption, no monitoring, recordkeeping or reporting shall be required for these emission units in accordance with 9 VAC 5-80-110. Insignificant emission units include the following:

| Emission Unit No. | Emission Unit Description | Citation | Pollutant(s) Emitted (9 VAC 5-80-720 B) | Rated Capacity (9 VAC 5-80-720 C) |
|---|---|---|---|---|
| IA5 | Burnham 3L-125-G-GP Natural Gas Fired Boiler/Space Heater | 9 VAC 5-80-720 C. | N/A | 5.23 MMBtu/hr. |
| IA6 | Jacket Water Storage Tank | 9 VAC 5-80-720 B | VOC | N/A |
| IA7 | Lube Oil Cooling Water Surge tank | 9 VAC 5-80-720 B | VOC | N/A |
| IA8 | Oil Sump | 9 VAC 5-80-720 C. | N/A | 390 Gallons |
| IA9 | Condensate Storage Tank #1 | 9 VAC 5-80-720 B | VOC, HAP | N/A |
| IA10 | Ethylene Glycol/Water Storage Tank | 9 VAC 5-80-720 B | VOC | N/A |
| IA11 | Ethylene Glycol Storage Tank | 9 VAC 5-80-720 B | VOC | N/A |
| IA12 | Used Oil Storage Tank | 9 VAC 5-80-720 B | VOC | N/A |
| IA13 | Boiler Condensate Storage tank | 9 VAC 5-80-720 B | VOC | N/A |
| IA14 | Diesel Storage Tank #1 | 9 VAC 5-80-720 B | VOC | N/A |
| IA15 | Diesel Storage Tank #2 | 9 VAC 5-80-720 B | VOC | N/A |
| IA16 | Condensate Storage Tank #2 | 9 VAC 5-80-720 B | VOC, HAP | N/A |
| IA17 | Wastewater Storage Tank | 9 VAC 5-80-720 B | VOC, HAP | N/A |
| IA18 | Storm Water Sump #1 | 9 VAC 5-80-720 B | VOC | N/A |
| IA19 | Storm Water Sump #2 | 9 VAC 5-80-720 B | VOC | N/A |
| IA20 | Cold Parts Washer | 9 VAC 5-80-720 B | VOC | N/A |
| IA21 | Lube Oil Storage Tank | 9 VAC 5-80-720 B | VOC | N/A |

[1]The citation criteria for insignificant activities are as follows:
9 VAC 5-80-720 A - Listed Insignificant Activity, Not Included in Permit Application
9 VAC 5-80-720 B - Insignificant due to emission levels
9 VAC 5-80-720 C - Insignificant due to size or production rate

**PUBLIC PARTICIPATION**

The proposed permit will be place on public notice in the News & Messenger, with a pubicl comment period from April 22, 2011 to May 23, 2011.

# Attachment A

## 2009 Emissions Inventory

**Commonwealth of Virginia**
**Department of Environmental Quality**



Registration Number: 71958

County - Plant ID: 153-00086

Plant Name: Transcontinental Gas Pipeline-Station 185

# POLLUTANT EMISSIONS REPORT (PLANT) (Tons/Year)

Pollutant Type: All Pollutants

**Parameter List**

Years: 2009-2009

| | CO | FORM | NO2 | PM 10 | PM 2.5 | SO2 | VOC |
|---|---|---|---|---|---|---|---|
| 2009 | 13.872 | 4.007 | 350.336 | 7.107 | 7.107 | 1.979 | 12.390 |